COMPUTER NETWORK

1. How many networks of class B are possible
   (a) 2^{32} (b) 2^{16}
   (c) 2^{14} (d) 2^{7}

2. In which of the following strategies, bits from HID are chosen in an IP address. (HID means Host ID).
   (a) subnetting (b) supernetting
   (c) NAT (d) None of these

3. In a subnet mask, number of 0's indicated
   (a) NID (b) HID
   (c) both (d) None of these

4. In the network layer stack, which layer is responsible for link to link communication:
   (a) physical layer (b) data link layer
   (c) network layer (d) transport layer

5. Which of the following is a private address:
   (a) 11.1.2.3 (b) 100.10.0.1
   (c) 192.168.1.1 (d) 255.255.0.0

6. Which of the following layer is responsible for routing
   (a) physical layer (b) data link layer
   (c) network layer (d) transport layer

7. In TCP, the sequence number given to a segment is sequence number of _____ byte
   (a) first byte (b) last byte
   (c) middle byte (d) None of these

8. Trace route program is implemented using which concept(s)
(a) feedback messaging (ICMP)
   (b) time to live
   (c) both
   (d) None of these

9. SMTP uses which protocol at the transport layer
   (a) TCP (b) UDP
   (c) IP (d) None of these

10. In the checksum calculation at TCP, which of the following are used
   (a) TCP header (b) TCP data
   (c) Pseudo header from IP (d) All the above

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11. In IP, checksum is calculated at
    (a) source (b) routers
    (c) source and routers (d) none of these

12. CRC is calculated at what layer
    (a) physical layer (b) data link layer
    (c) network layer (d) transport layer

13. In Ethernet, what is the access control strategy used
    (a) CSMA/ CD (b) CSMA/ CA
    (c) token passing (d) None of these

14. If 'K is the maximum number of bits available in sequence number field, then what is the maximum senderwindow size in GBN.
    (a) 2^K-1 (b) 2^{K-1}
    (c) 2^K (d) $2^K + 1$

15. Which routing algorithm suffers from count to infinity?
    (a)DVR (b) LSR
    (c) both (d) None of these

16. In public key, private key cryptography, if 'A' has Pu_A and Pr_A, 'B' has Pu_B and Pr_B as public and private keys. Then if 'A' wants to send a message to 'B' securely 'A' will use which key for encryption
    (a) Pu_B (b) Pu_B
    (c) Pr_A (d) Pr_B

17. What are the main responsibilities of transport layer?
    (a) Error control (b) Flow control
    (c) Segmentation (d) All the above

18. If Bandwidth of an Ethernet can is 100Mbps, distance of the LAN is 1Km, velocity of signal in cable is $2*10^8$ m/sec. Then what is minimum size of a frame in this Ethernet to detect collisions.
    (a) 10,000 bits (b) 1000 bits
    (c) 100 bits (d) 1000 bytes

19. In a token ring, if the propagation delay in a ring is equal to the transmission delay, then what is the maximum efficiency? Assuming that only one station is in token ring.
    (a) 100% (b) 50%
    (c) 25% (d) 12.5%

20. In the following graph, if DRV is applied, how many edges go unused?

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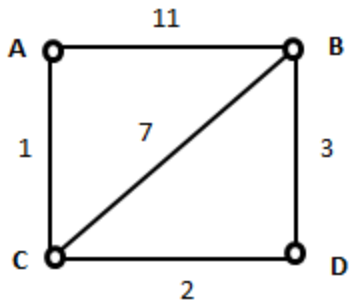


(a) 1 (b) 2
(c) 3 (d) 4

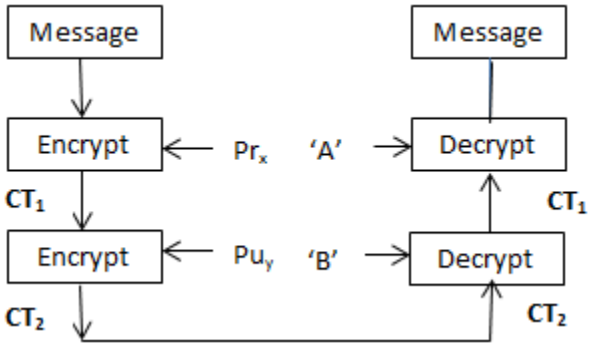
21. If a class B network is divided into subnets, and the subnet mask is 255.255.192.0, then how many subnets and hosts per subnet are possible
(a) 4, 2^{14} (b) 4, 16
(b) 16, 16 (d) 4, 2^{14}-2

22. If the IP is 193.1.2.3, Sm= 255.255.255.240. Then number of subnets and hosts possible in each subnet are:
(a) 16, 14 (b) 16, 16
(c) 14, 14 (d) 14, 16

23. Wrap around time in TCP depends on
(a) sequence number bits (b) bandwidth
(c) both (a) and (b) (d) None of these

24. When a datagram is fragmental, which of the following fields may change?
(a) Fragment offset (b) more fragment (MF) flag
(c) Total length (d) All the above

25. In a public key, private key cryptography, scheme given below, identify 'A' and 'B'.



(a) A= Pu_y, B= Pr_x (b) A= Pr_x, B= Pu_y
(c) A= Pr_y, B= Pu_x (d) A= Pu_x, B= Pr_y

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26. In a IP datagram, a TCP segment is present. Header length field in IP datagram is 5. Total length of IP datagram is 1000 bytes. Header length field in TCP header is 7. Then what is size of TCP data present in the datagram.

(a) 988 (b) 952

(c) 964 (d) 900

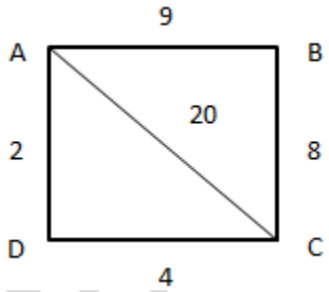
27. If the receiver capacity is 16 mss. If the slow start phase starts with 1 mss and no congestion is detected until maximum receiver capacity is reached. After how many RTT's maximum receiver capacity is reached?

(a) 9 (b) 10

(c) 11 (d) 12

Common Data Questions: 28 and 29

For the above graph, if the numbers associated with each edge are weights the links, then if DVR is used



28. What is the routing table at 'c' after the tables are stabilized

(a)

A	20	A
B	8	B
C	0	C
D	4	D

(b)

A	6	D
B	8	B
C	0	C
D	4	D

(c)

A	20	A
B	8	D
C	0	C
D	4	D

(d)

A	20	A
B	8	B
C	0	C
D	4	D

29. Which edge(s) are never used in the above graph

(a) AB (b) BC

(c) AC (d) All the above

Common Data Questions: 30 and 31

An ISP has a block with block ID as shown: 193.1.2.0/ 24

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30. The number of bits reserved for Host ID and the number of hosts possible are

(a) 2^4, 2^{24}-2 (b) 8, 2^8-2

(c) 3^2, 2^{32}-2 (d) 16, 2^{16}-2

31. If the ISP wants to divide the block between three organizations having the requirement 120, 60 and 60, then purpose the block ID's for the division

(a) 193.1.2.0/25, 193.1.2.128/26, 193.1.2.192/26

(b) 193.1.2.0/120, 193.1-.-128/60, 193.1.2.192/60

(c) 193.1.2.128/25, 193-1.2-.64/26, 193.1.2.0/26

(d) Both (a) and (c)

Common Data Questions: 32 and 33

32. If the distance between two nodes is 2 Km, velocity of signal in the medium is $2*10^8$m/s, each frame is 1000 bits and bandwidth of the link is 1Gbps. If the channel is error free (no needof SR or GBN), and pure sliding window protocol is used, then what is sender window size:

(a) 61 (b) 41

(c) 21 (d) 11

33. From the above question, how many bits are required in the sequence number field?

(a) 6 (b) 5

(c) 4 (d) 3

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